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CALIFORNIA ENERGY STUDY

Eleven economists from a variety of educational and research institutions present their views on the energy problem in the report, "California Energy: The Economic Factors," which will be published in early May by the Federal Reserve Bank of San Francisco. This publication is designed to provide information on the economic aspects of energy usage and energy technology, with special emphasis on California nuclear power.

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Commercial Bank Lending to Developing Countries

Nicholas Sargen

Throughout the earlier part of the postwar era, the majority of developing countries had only limited access to international capital markets, and instead had to rely on official sources to supply the bulk of their external financing requirements. In the early 1960's, bilateral official assistance accounted for over 60 percent of the total net flow of resources to developing countries, while multilateral assistance averaged about 6 percent. Funds supplied by private sources—the remaining third—consisted almost entirely of direct investments and suppliers' credits.

Over the last fifteen years, however, several developments have occurred to make commercial banks an important financing source to developing countries. They include (1) rapid economic growth in the developing countries and failure of official assistance to keep pace with this growth; (2) emergence of the Eurocurrency market as a funding source; and (3) the impact of the oil crisis and the worldwide recession on the external payments positions (and hence the credit demands) of the devel-

oping countries. Consequently, commercial-bank credits today comprise approximately 20 percent of the total net flow of resources to developing countries, bringing the share of private financing to nearly half of the total.¹

This article reviews the factors contributing to the rapid growth of commercial-bank lending to developing countries—primarily the non-OPEC countries—and addresses itself to two basic issues. First, how exposed are commercial banks to potential default or rescheduling problems? Second, to what extent are commercial banks compensated for added risks they incur in lending to developing countries? The principal finding is that the differential rate of return commercial banks receive from investing in developing countries vis-a-vis developed countries is low by historic standards. However, this does not imply that the differential is insufficient to cover the added risk of default, given the long-run prospects of the major recipients of commercial-bank credits and given the institutional arrangements available for handling their debt problems.

Rise of Commercial-Bank Lending to Developing Countries

As a group, the developing countries (LDCs) have amassed an impressive economic record over the last fifteen years. During the 1960's, their real national product rose 5.5 percent annually, in the aggregate, and in the first half of the 1970's their annual growth approached 6 percent. These figures far exceed rates in the first half of the century, when

growth in real output averaged two percent, and less than one percent in per capita terms.²

Economic growth was far from uniform, however. Nearly half of the lower-income countries (per capita incomes of \$200 or less, 1972 prices) recorded growth rates of less than one percent per capita in 1960-72, whereas over 60 percent of the higher-income countries

Table 1
Gross Publicized Eurocurrency Credits
to I.B.R.D. Member Countries
(\$ millions)

Country Category	1971^a	1972^a	1973^a	1974^b	1975^b
Developing Countries	1,475	4,080	9,116	9,605	11,530
of which:					
Oil Exporters	432	1,117	3,013	773	3,137
Higher-income	918	2,632	5,280	6,980	7,216
Middle-income	62	94	507	1,562	1,105
Lower-income	63	130	317	291	71
Industrial Countries				16,915	4,627
	2,645	3,771	11,125		
Other				2,103	3,373
Total, IBRD Member Countries	4,120	7,851	20,241	28,624	19,530
Non-IBRD members ^c				1,108	2,530

Major Developing Country Recipients

Country Category	1971	1972	1973	1974	1975	cumulative '71-'75
Oil Exporters						
Algeria	120	275	1,352	—	500	2,247
Indonesia	—	98	478	348	1,536	2,460
Iran	224	461	712	114	245	1,756
Venezuela	78	258	63	58	200	657
Higher-income						
Argentina	50	264	87	559	34	994
Brazil	212	577	715	1,668	2,069	5,241
Greece	60	330	600	438	239	1,667
Mexico	140	509	1,572	1,478	2,159	5,858
Peru		209	734	366	423	1,732
Spain	420	253	467	1,169	931	3,240
Yugoslavia	10	255	235	549	73	1,122
Middle or Lower-income						
Philippines	—	61	—	883	213	1,157
South Korea	40	30	142	264	312	788
Zaire	55	90	287	71	27	530

^aSource: OECD, Development Assistance Committee, *Development Co-operation Review*, 1973-74. Data on Eurocurrency loans are based on tombstone advertisements, which were not as commonly used in 1971-72 as in later years.

^bSource: IMF Survey, February 16, 1975.

^cPrimarily represents lending to Socialist Bloc countries and Hong-Kong. Major 1974-75 recipients are Poland (\$894 million), USSR (\$750 million) and Hong Kong (\$715 million).

(over \$375 per capita) had growth rates of more than 3 percent per capita. As bilateral assistance became increasingly scarce in the 1960's, a larger percentage of the restricted flow was concentrated in the poorest countries. Consequently, a number of the higher-income developing countries were forced to seek alternative sources of financing to sustain their high growth rates. Multilateral lending institutions were able to narrow the gap by extending credits through their "hard loan" windows, but they could not completely satisfy the large loan demands of these rapidly growing countries.

Commercial banks in the Eurocurrency market and in the United States began lending to developing countries on an extensive basis in the early 1970's. The developing countries benefited from a change in Eurocurrency market conditions, from a phase of strong demand for funds at high interest rates in 1969-70 to a phase of rapidly increasing supply in 1971. The shift reflected the large-scale replacement of funds previously borrowed by banks in the

U.S., as well as intensification of controls on capital inflows in the major European countries and Japan, which affected borrowings of their residents from the Eurocurrency market.³

The flow of medium-term credits from banks operating in the Eurocurrency market (including credits syndicated and funded by foreign branches of U.S. banks) has grown rapidly since 1971. The amount of Euro-credits with maturities over a year, for example, increased from an estimated \$1.5 billion in 1971 to an estimated \$11.5 billion in 1975 (Table 1). Flows from banks in the U.S. market, on the other hand, have increased from less than \$1 billion in 1971 to about \$7 billion in 1975 (Table 2). Most of this growth in U.S. bank (head-office) claims on LDC's, however, reflects increases in short-term credits (a year or less), which are related to trade financing, whereas U.S. long-term credits have grown at a slower pace. Excluding short-term loans, developing countries received about 45 percent of the commercial bank credits extended abroad since 1971. The latter have

Table 2
Claims on Foreigners Reported by Banks in the United States^a

(\$ millions)

Long Term Claims

Region	Long term Claims Outstanding As of Dec. 31, 1975	changes in long term claims				
		1971	1972	1973	1974	Nov. 1975
Developing Country Total ^b	6,134	274	821	658	685	1,446
Total, all countries	9,393	589	1,287	933	1,172	2,199

Short Term Claims

Region	Short term Claims Outstanding As of Dec. 31, 1975	changes in short term claims				
		1971	1972	1973	1974	Nov. 1975
Developing Country Total ^b	18,492	608	907	1,473	5,963	5,432
Total, all countries	49,683	2,368	2,199	5,049	18,307	10,653

^a Long term claims are those over a year, while short-term claims are those a year or less.

^b Total for Latin America (except Bahamas, Panama, Netherlands Antilles), Asia (excluding Hong Kong and Japan), Africa, and Greece, Portugal, Spain, Turkey, and Yugoslavia.

Source: U.S. Treasury Bulletin, February 1976.

been heavily concentrated in a small number of higher-income developing countries. Three countries in this group—Brazil, Mexico, and Spain—received nearly 40 percent of the long-term credits extended to developing countries since 1971, and roughly half of the credits made in the last two years.

Federal Reserve data collected from 21 large U.S. banks indicate that about two-thirds of total U.S. bank lending to the non-OPEC developing countries is concentrated at the six largest

banks—Bank of America, Citibank, Chase Manhattan, Morgan Guaranty, Manufacturers Hanover, and Chemical (Table 3). As of December 31, 1975, the six banks had almost \$12 billion in loans outstanding to a select group of developing countries, representing about 5 percent of their total assets. Claims on Mexico and Brazil were each about 1½ percent of total assets of the six largest banks, whereas claims on all other developing countries were less than one-half of one percent.

Table 3
Comparison of Claims on Selected Non-OPEC LDC's with
Total Loans and Total Assets of 21 Large U.S. Banks: December 31, 1975^a
(millions of dollars)

Developing Country	Total Claims		Claims over a year	
	21 Banks	6 ^b Largest Banks	21 Banks	6 Largest Banks
Mexico	5,810	3,573	2,614	1,480
Brazil	5,540	3,734	2,980	1,924
South Korea	1,473	972	313	184
Argentina	1,071	725	242	144
Peru	1,066	665	492	311
Colombia	756	571	157	111
Philippines	740	597	237	181
Taiwan	677	397	143	78
India	197	178	105	105
Egypt	177	162	31	26
Zaire	162	123	120	116
Zambia	99	99	18	18
Uruguay	54	54	—	—
Pakistan	51	51	—	—
Guatemala	38	23	23	12
Total claims on 15 countries	17,911	11,924	7,475	4,690
Memorandum				
Total Loans	218,397	136,078		
Total Assets	394,094	237,621		

^aData are for 21 banks reporting foreign assets and liabilities for Senate Subcommittee on Multinational Corporations (Church Committee). These data include claims held by head offices and significant branches and pro-rata share of claims held by significant majority-owned subsidiaries with intra-bank claims netted out; the data exclude claims guaranteed by any agency of the U.S. Government (such as the Export-Import Bank), and claims on which reporting banks believed they had an enforceable guarantee from a U.S. corporation.

^bBank of America, Citibank, Chase Manhattan, Morgan Guaranty, Manufacturers Hanover, and Chemical.

Source: "Memorandum on Foreign Assets and Liabilities of U.S. Banks" prepared for Subcommittee on Multinational Corporations by staff of the Federal Reserve Board.

Impact of the Oil Crisis and World Recession

Until recently, this trend towards increased commercial-bank financing was generally applauded as a means whereby LDCs could become less dependent on official assistance. In the wake of the oil-crisis and worldwide recession, however, many analysts have begun a critical reappraisal of the situation. According to OECD estimates, the combined current-account deficit of all non-OPEC developing countries reached a record \$38 billion in 1975, compared with \$26 billion in 1974 and \$9 billion in 1973, so that a question has arisen regarding the ability of at least some of these countries to continue accumulating debt at such a rapid rate without defaults or reschedulings.⁴

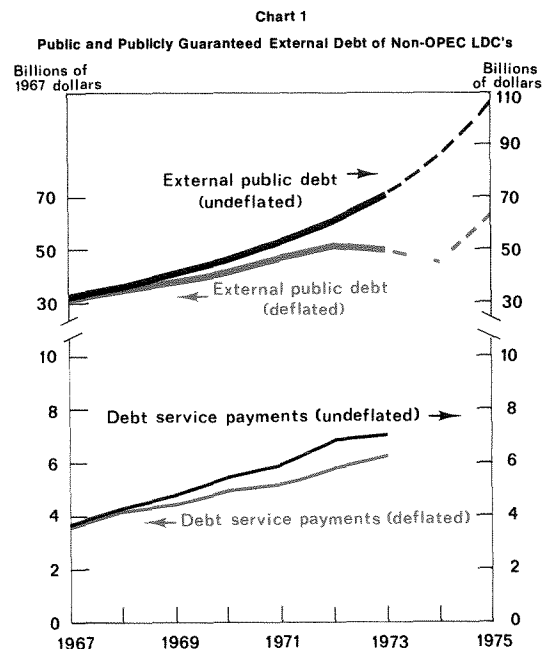
Both structural and cyclical forces help account for the pronounced deterioration in the trade situation of non-OPEC developing countries over the last two years. The initial impact was structural, as the developing countries encountered considerable problems adjusting to the higher price of OPEC oil. With their consumption of petroleum relatively unchanged (Chart 1), they have had to spend \$10-11 billion more annually for oil imports than in 1973.⁵ Their annual exports to OPEC countries, on the other hand, have increased by only \$1 billion. In addition, food and fertilizer supply shortages and price increases for other imports in 1973-74 posed further problems, especially for the worst-hit countries in Asia and Africa. Altogether, oil, food, and fertilizer imports cost non-OPEC developing countries about \$14 billion more in 1974 than in 1973, and this represented more than 80 percent of their current-account decline.

In contrast, most of the \$12.5-billion trade deterioration in 1975 reflected cyclical influences, as developing countries lagged the industrial countries into recession. The volume of non-OPEC developing country exports to OECD countries rose far less rapidly in 1974 than in 1973 (8.5 percent vs. 16.5 percent), and then actually declined in 1975. Their import volume from OECD countries, however, did not begin to slow down until well into the second half of 1974. Prices of raw commodi-

ties—the staple exports of developing countries—also began to fall in the latter part of 1974 from their earlier peak levels, while OECD export prices continued to rise, and these softening terms of trade accentuated the deterioration in their trade balance.

External Debt Accumulation

Prior to the oil crisis (1967-72), the external public debt of non-OPEC developing countries (public and publicly guaranteed external debt over a year's maturity) grew at a steady rate of 14 percent per annum, while debt service grew at an annual rate of 13 percent (Chart 2). There was a noticeable acceleration in debt outstanding and debt service in 1973, but this was offset by extraordinarily high commodity prices. Thus, when deflated by the LDC export-price index, excluding oil (1967= 100), the 1973 figures show no acceleration in growth of "real" debt service payments, and a decline in "real" debt outstanding. Similarly, other debt-burden indicators (e.g., debt service as a percent of exports



Source: World Bank, *World Debt Tables*, Vols. I-II. World Bank data excludes all debts with maturity of one year or less as well as private non-guaranteed external debt. The price deflator used is the LDC export-price index, excluding oil. (1967 = 100). Extrapolations are based on OECD estimates of net long-term borrowings of oil-importing countries. (See text.)

or of GNP) indicate no dramatic changes in 1973 compared with other periods.

Although World Bank data are not available beyond 1973, it is possible to make rough estimates of the external public debt of developing countries from OECD balance-of-payments data. On this basis, net long-term borrowing of the oil-importing countries was about \$15 billion in 1974 and \$20 billion in 1975.⁶ These figures, added to external debt outstanding in the previous year (disbursements basis), yield total debt estimates of \$87 billion in 1974 and \$106 billion in 1975.

These 1974-75 estimates are not exactly comparable with World Bank data for earlier periods since they include total net commercial bank credits from the Euro-currency and U.S. markets with over one year's maturity, whereas World Bank data omit private debt which is not publicly guaranteed.⁷ Precise comparisons thus cannot be made, but it is still fairly evident that there has been a marked acceleration in LDC external debt in nominal terms. Our estimates, for example, suggest an annual rate of increase of over 20 percent in the last two years.

It is less apparent what has happened to the LDC debt burden in real terms. Real debt outstanding probably declined substantially in 1974 as a result of favorable export price movements, but increased in 1975 when commodity prices fell. Our estimates, based on fragmentary export price data for 1975, indicate an accelerated growth of real debt outstanding—an annual rate of about 11.5 percent in 1974-75, compared with 8 percent in 1967-73. This means, however, that debt has grown much more slowly in real terms than in nominal terms.⁸

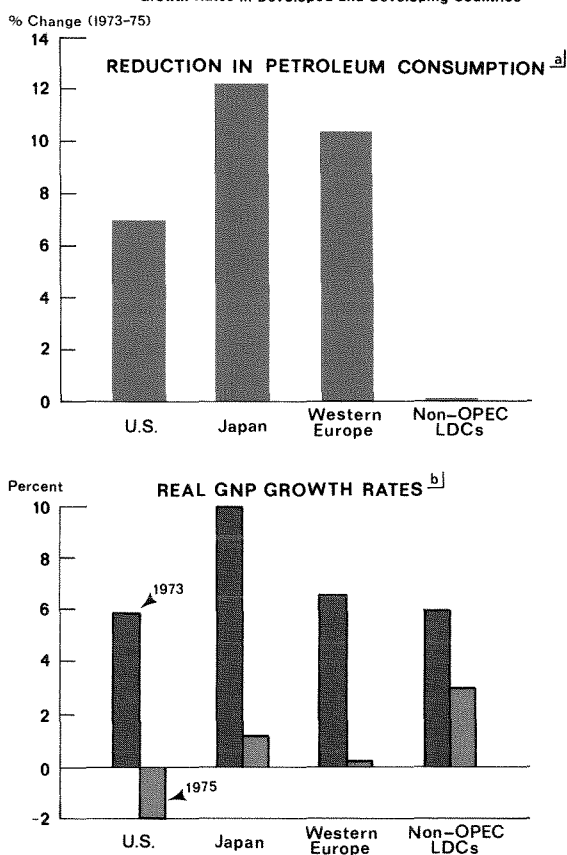
Balance of Payments Prospects

From the commercial-bank standpoint, the relevant issue is how readily the countries with substantial bank debts can adjust to higher oil prices and world business-cycle fluctuations. Among the key areas to watch are the twelve countries shown in Table 4, which account for over 80 percent of long-term outstanding debt owed by non-OPEC developing countries to

private banks. These countries had combined current-account deficits of over \$18 billion in 1974 and \$20 billion in 1975, but their 1975 increase was considerably smaller than the average for other developing countries. Thus, their share of the combined non-OPEC LDC current-account deficit fell from 70 percent in 1974 to about 55 percent in 1975, and it is expected to fall further in 1976.

Six of the countries (Brazil, Republic of China, Greece, Mexico, Spain and Yugoslavia) were able at the least to prevent sizeable deteriorations in their international accounts in 1975 through a combination of reduction in growth rates and stabilization of inflation rates. Three other countries (Mexico, Peru, and the Philippines) recorded substantial increases in their current-account deficits, albeit relatively modest reductions in real growth rates.⁹ Finally, three

Chart 2
Comparison of Reductions in Petroleum Consumption and GNP Growth Rates in Developed and Developing Countries



Sources: For developed countries, F.E.A., *Monthly Energy Review*, January 1976. For developing countries, Wouter Tims, "The Developing Countries," Chapter 5 in *Higher Oil Prices and the World Economy*, Edward Fried and Charles Schultze, eds., Brookings Institution, 1975.

^b Sources: For Developed Countries: OECD, *Economic Outlook*. For developing countries, 1975.

of the countries (Argentina, Chile and Zaire) each suffered a sizeable reduction in its real growth rate and a substantial deterioration in its trade account.

The debt problems of these three countries, however, were only remotely related to oil. Rampant inflation and political instability contributed to the foreign-exchange crises in Argentina and Chile, where consumer prices have increased over 200 percent and over 300 per-

cent, respectively for 12-month periods ending in late 1975. Inflation and government spending were also factors in Zaire, although the foreign-exchange crisis there was ultimately triggered by a sharp drop in the world price of copper.¹⁰

None of these three countries has formally defaulted in the sense of repudiating its debt, and all three are now developing programs to improve their long-run balance of payments

Table 4
Economic Indicators of Twelve Non-OPEC LDC's
With Large Commercial Bank Debts

Country	Current Account ^a			Growth Rate ^a		CPI Inflation Rate ^b	
	Balance (\$ billion)			of Real Output (percent)		(percent)	
	actual 1974	est. 1975	proj. 1976	actual 1974	est. 1975	actual 1974	est. 1975
Higher-income							
Argentina	0.22	-0.97	-0.05	7.2	2.5	23	258 (Sept.)
Brazil	-7.15	-7.20	-6.0	9.6	4.	27	29
Chile	-0.38	-0.54	-0.3	5.2	2.	585	338 (Nov.)
China, Republic of	-1.12	-0.12	-0.1	0.6	4.	48	3 (Nov.)
Greece	-1.24	-1.35	-1.35	-3.1	0.75	28	14
Mexico	-2.56	-3.50	-3.25	5.2	4.5	22	17 (Sept.)
Peru	-0.68	-1.15	-1.2	6.6	4.0	17	26 (Sept.)
Spain	-3.15	-2.70	-2.0	5.0	0.	16	17
Yugoslavia	-1.20	-1.20	-1.0	7.5	5.	22	24
Middle or lower income							
Philippines	-0.28	-0.85	-0.85	5.8	5.6	34	2 (Nov.)
South Korea	-1.88	-1.60	-1.40	8.7	7.5	24	26
Zaire	-0.17	-0.45	-0.40	3.5	(-2 to -5)	30	31 (Sept.)
Total, above countries	-18.4	-20.4	-15.25				
Total, all non-OPEC developing countries	25.5	(-35 to -38)	(-29 to -34)			29	28 (Sept.)
Industrial countries	-17.5	+10	(+1 to -2.75)			12.6	10.7

^aSources: For Greece, Spain, Yugoslavia, OECD *Economic Outlook*, December 1975. For all other countries, Morgan Guaranty Trust Co., *World Financial Markets*, January 1976.

^bSource: *IFS Survey*, March 1976. 1975 inflation rates in parentheses are percent changes in last 12 months. All others are averages of monthly changes.

prospects. In early 1975, for example, the Chilean government agreed to a set of measures recommended by the International Monetary Fund, which included imposition of new taxes, a freeze on public employment, tightened credit to the private sector, and adoption of flexible exchange-rate policies.¹¹ Last December, the government of Zaire also requested I.M.F. assistance to develop a stabilization program, and Argentina is expected to follow suit. Meanwhile, Argentine authorities have undertaken a series of extensive devaluations, designed to stimulate the export trade and improve the trade balance.

Market Assessment of Developing Country Risk

The recent debate over commercial bank lending to developing countries has focused attention on the alleged high risks entailed in LDC loans. Economic theory, however, leads one to expect that commercial banks will require added compensation if they perceive defaults or reschedulings on LDC loans to be greater than those on loans to developed countries. Hence, commercial banks will not necessarily be vulnerable to LDC external-debt problems, provided their perception of LDC lending risk is generally accurate. On the other hand, if commercial banks systematically understate the risks involved in lending to developing countries, the added revenues they receive on LDC loans will not be sufficient to cover the added costs incurred, and their profit and liquidity positions will be squeezed by LDC defaults or reschedulings. In examining developing country lending risk, therefore, it is important to separate two issues: (1) On what basis do commercial banks form their perception of LDC lending risks, and to what extent are they compensated for the added perceived risk? (2) Is the market perception of LDC lending risk "correct"—i.e. is the compensation sufficient to cover added costs?

To answer these questions, we have analyzed data compiled by the World Bank on publicized Eurocurrency credits completed between the third quarter of 1974 and the third quarter of

In sum, prospects for most of the major recipients of commercial-bank loans suggest an improving trend in current accounts. Their export growth rates should revive due to recovery in the OECD nations, while their import growth should continue to slacken as their domestic economies slow down. Even in instances where countries have incurred debt problems, moreover, the causes are largely unrelated to oil but are predominantly related to domestic difficulties. In these cases, the key to an improved long-run trade position is the ability to bring inflation rates back into line with those of other countries.

1975—altogether, 67 loans to developed countries, totaling \$3.8 billion, and 177 loans to developing countries amounting to \$10.0 billion. Information in each case included the borrower and borrowing country; the leading creditor institutions; the month of the loan agreement; the amount of the credit; the commitment period; and the spread over the London Inter-Bank Offer Rate (LIBOR).

Average premium on loans to LDCs

First, we were interested in the premium investors receive on credits to developing countries compared with their credits to developed countries. This involves an analysis of the most typical form of Euro-credit, a revolving credit at a floating interest rate. Funds are drawn as a short-term advance, usually renewable at the end of three-month or six-month periods (called the "renewal period" or "rollover period") for a designated term (called the "commitment period"). Rates to borrowers are quoted on the basis of the three-month or six-month LIBOR rate plus the "spread." The latter covers overhead cost, profit, and risk, and is determined on the basis of the borrower's creditworthiness and competitiveness of the market when the commitment is made.

The first regression equation in Table 5 illustrates how the spread varied depending (1) on the recipient of the Euro-credit, whether de-

veloped or developing country, (2) on the date of commitment, whether 1974 or 1975, and (3) on the length of the commitment period. Each of the variables is statistically significant, although the maturity of the loan has a relatively small coefficient and small t-statistic. The latter finding is not surprising, however, in view of the variable interest rates on Euro-credits.¹² The regression results show that borrowers from developing countries paid an average spread of about 140 basis points in 1974, whereas developed country borrowers paid about 25 basis points less on average, reflecting the lower perceived lending risks. In 1975, although the spread was about 40 basis points

higher for each of the two groups, the LDC-DC differential did not change significantly. Expressed as a percentage of borrowing costs (LIBOR + spread), the developing-country premium translated into an additional 2-to-3 percent rate of return on investment over that on developed-country loans.¹³

Variation in spreads

Further analysis takes into consideration the fact that there are variations within the group of developing countries. Typically, they are separated into prime and non-prime categories, based in part on each country's per capita income. The second regression in Table 5 takes

Table 5
Regression Results: Variations in Spreads on Euro-credits, 1974.3-1975.3^a
(t-statistics in parentheses)

(i) Developed (DC) and Developing Country Loans^b

Spread =	Constant	Average reduction for developed countries	Average 1975 increase	Maturity ^d
\bar{R}^2 = .48	1.41	-.25	.40	-.017
D.W. = 1.58	(18.3)	(6.70)	(10.4)	(1.78)
S.E.E. = .25				
D.F. = 240				

(ii) Developing Countries Only^c

Spread =	Constant	Income "effect"	Mexico "effect"	Debt ^d Service Ratio	Inflation ^d Rate	Avg. 1975 increase	Maturity ^d
\bar{R}^2 = .54	1.46	.10	-.27	.006	.005	.26	-.04
D.W. = 1.86	(15.9)	(2.80)	(4.40)	(2.35)	(3.80)	(5.58)	(3.96)
S.E.E. = .21							
D.F. = 170							

^aData Source: World Bank, *Borrowing in International Capital Markets*, 5 issues, November 1974-November 1975.

^bRegression equation is of form: Spread = $a_0 + a_1 \left\{ \begin{array}{l} \text{LDC}=0 \\ \text{DC}=1 \end{array} \right\} + a_2 \left\{ \begin{array}{l} 1974=0 \\ 1975=1 \end{array} \right\} = a_3 \cdot (\text{Maturity})$.

Hence, the constant term can be interpreted as the average 1974 LDC spread, unadjusted for maturity.

^cLDC Spread = $b_0 + b_1 \left\{ \begin{array}{l} \text{High Inc.}=0 \\ \text{Other}=1 \end{array} \right\} + b_2 \left\{ \begin{array}{l} \text{Other}=0 \\ \text{Mex.}=1 \end{array} \right\} + b_3 \cdot (\text{Debt Ser.}) + b_4 \cdot (\text{Inf.}) + b_5 \left\{ \begin{array}{l} 1974=0 \\ 1975=1 \end{array} \right\} + b_6 \cdot (\text{Mat.})$

Hence, the constant term can be interpreted as the average 1974 spread for higher-income LDCs, unadjusted for maturity, debt-service ratio, and the inflation rate.

^dCoefficient must be multiplied by the value of the variable. Maturities are usually 5-8 years; debt-service ratios are generally between 10-20%; inflation rates are usually in the 15-30% range.

this into account by distinguishing between higher-income countries and lower- or middle-income countries (using World Bank definitions). In addition, we have included a separate dummy variable for Mexico, in view of that country's long experience as a borrower in international capital markets.

The choice of other variables is less clear-cut. For example, banks differentiate between government and private borrowers, but that distinction is not very meaningful if a loan to a private borrower carries a government guarantee, or if the institution is quasi-official. The data also indicate that project risk is less important than country risk in setting spreads¹⁴—but there is no generally accepted framework for assessing country default risk. In the absence of such a framework, analysts have tended to use those economic indicators which reflect a country's capacity to service its debt, although there is no general agreement as to which indicators are important in this regard. Despite the large number of possible measures, we have limited ourselves to two of the most commonly used; first, the inflation rate, and second, the debt-service ratio, i.e., the proportion of foreign-exchange earnings on current account absorbed by public-debt service.¹⁵

All the variables included in the regression are statistically significant and have the anticipated signs. The coefficients of the inflation variable and the debt service variable are quite small, however, so that each adds only about 10 basis points to the spread on average, assuming a 20-percent inflation rate and 15-percent debt-service ratio. Lower and middle income countries paid only about 10 basis points more than higher income countries, whereas Mexico paid about 25 basis points less than other higher income countries and about 35 basis points less than lower-middle income countries. In sum, no single factor appears to dominate in explaining variations in LDC spreads, although Mexico clearly is in a separate category from other developing countries.

It is also instructive to note how commercial banks responded to the large LDC trade defi-

cits. The regression indicates that developing country spreads increased about 25 basis points on average between the second half of 1974 and the first three quarters of 1975. Increases in spreads for major Eurocurrency borrowers other than Mexico, however, were well above the developing country average. The spread which Brazil paid, for example, increased from $\frac{3}{4}$ of one percent on 12-year loans in late 1974 to $1\frac{3}{4}$ percent for 5-year loans in 1975, while the spread for Spain increased from 1 percent on 8-year loans to $1\frac{3}{4}$ percent on 5-year loans. Hence, the relatively small difference in spreads between higher-income countries and lower-middle income countries reflects, in part, bankers' revised perceptions of lending risks to heavy borrowers. Countries which incurred debt problems generally paid the highest spreads, in addition to experiencing sharp reductions in new lending flows.

Comparisons with earlier periods

Comparisons of Eurocurrency loan premiums over longer time periods are difficult to make, since calculations for earlier periods are based on bond flotations rather than bank loans. The evidence, however, strongly suggests that the premium attached to portfolio investment in developing countries today may well be at an all-time low. The yield premium between developed and developing country bond issues is much lower today than in 1958-65, when the average LDC yield was nearly one-half to two-thirds higher than that of high-grade U.S. domestic corporate bonds, and between one-third and one-half higher than that on Canadian issues.¹⁶ Differential yields in the 1920's were somewhat smaller (40 percent over U.S. corporate bonds and 25 percent over Canadian public issues in the U.S.), but still well above the differential developing countries pay today.

The narrowing LDC premium in part reflects the increasingly impressive economic performance of the higher-income developing countries. While these countries have been adversely affected by the events of the last several years,

their prospects today are still considerably brighter than they were fifteen or twenty years ago. In addition, the banking system has developed various risk-reducing mechanisms, such as variable interest rates, for example, or syndicated bank loans, which provide a means of spreading country risks that are borne by individual banks.

Finally, attitudes towards default have changed considerably since the 1930's and 1940's, when there were massive LDC defaults on bond issues. At that time, developing countries which encountered foreign-exchange crises had little incentive or option to avoid default.

"Prior to the Great Depression, external long-term debt consisted primarily of bond issues floated abroad. Only rarely could a refunding be arranged prior to actual default. Then some agreement had to be reached by the debtor and the bondholders, often represented by committees, which could not bind the bondholders but could merely recommend acceptance of the proposal. In some instances the debtor made a unilateral offer to the private creditors, which they could accept as the alternative to not being repaid at all. The governments of the creditors were not parties to the agreements, though they could use diplomatic means to protect their nationals."¹⁷

The differences in the post-war period are striking. Since the late 1950's there have been at least 25 instances, involving 15 different countries, where debt arrearages have had to be ne-

gotiated.¹⁸ Governments of creditor and debtor nations were parties to the negotiations, and the outcome in each case was a rescheduling of a country's debt, rather than outright default. Given present institutional arrangements for handling debt problems, the likelihood of a developing country repudiating its debt is now perceived to be quite low.

Past experience suggests that the market's perception of LDC risk has not systematically understated the costs involved. The relevant issue today, though, is whether the developing country debt situation will be the same in the future as in the past. There are few signs to indicate a hardening attitude in creditor government attitudes, although governments of some developing countries have urged a moratorium on foreign debt-service payments. The more likely development is that future reschedulings will involve both official and commercial-bank credits. One can only speculate, however, as to how often countries will have to reschedule, whether bank credits will be rescheduled in proportion to their share of external debt-service payments, and whether credits will be rescheduled at market interest rates. The debt negotiations in Argentina, Chile, and Zaire are significant because they provide the first test cases of reschedulings in countries where commercial-bank credits comprise a sizeable portion of the external debt service. As these negotiations are concluded, it is possible that the market's perception of LDC risk could be altered.

Conclusion

It is important to separate two issues in the debate over commercial-bank lending to developing countries: (1) Are commercial banks vulnerable to LDC defaults? (2) Are commercial banks adequately compensated for the added risks incurred in lending to developing countries?

On the first issue, our analysis suggests that fears of significant commercial-bank exposure to LDC defaults are grossly exaggerated. Some analysts have focused attention on the record LDC trade deficits and the debt problems of

individual developing countries, and have suggested that developing countries, as a group, are accumulating debt too rapidly. The aggregate trade statistics, however, can be misleading in a number of respects. First of all, the LDC current-account deficits do not translate into comparable increases in net long-term borrowings due to non-bank sources of financing (e.g. official transfers, direct investment, etc.). Second, the distinction between nominal debt accumulation and real debt accumulation is seldom made, even though LDC debt apparently

has grown much less in real terms than in nominal terms. Third, countries which are major recipients of commercial-bank credits are in a far better position to adjust to external shocks than are most other developing countries. Several countries have experienced debt problems, but their difficulty, most likely, is one of rescheduling rather than default. Moreover, their loans comprise a very small fraction of U.S. bank assets.

On the second issue, we find that commercial banks have responded to higher perceived

risks through above-average increases in spreads to major borrowers and to countries with debt problems, and through the curtailment of lending to those with debt problems. Still, the differential rate of return between developed and developing country loans appears low by historic standards. However, this does not imply that the differential is insufficient to cover added lending risks, especially in view of governments' increasing tendency to minimize the possibility of default.

FOOTNOTES

1. The total net flow of resources received by developing countries was an estimated \$40.8 billion in 1974, of which commercial bank credits over a year exceeded \$8 billion. OECD Development Assistance Committee, **Development Co-operation** (1975 Review).

2. Historical data are from Paul Bairoch, **The Economic Development of the Third World Since 1900** Berkeley: University of California Press 1975. In large part, the economic growth in the 1960's and 1970's was export-led, a response to the rapid growth of the world economy and its impact on world trade. Thus, the LDC export growth rate averaged about 8.5 percent per annum in 1960-72 compared with less than 5 percent in the preceding 60 years.

3. Azizali Mohammed and Fabrizio Saccomanni, "Short Term Banking and Euro-Currency Credits to Developing Countries," International Monetary Fund, **Staff Papers** 20, 1973, p. 617.

4. In contrast, the combined current-account balance of the major industrial nations reached an estimated \$10-billion surplus in 1975—a \$27-billion swing from the \$17.5-billion deficit of 1974.

5. Consumption of petroleum in the OECD countries, on the other hand, has fallen by 9 percent over the last two years. Given the short time interval, it is difficult to determine how much of this reduction is due to income effects related to the recession, and how much is due to price effects, or to energy conservation measures.

6. These figures are obtained by taking OECD estimates of net aid flows (excluding official transfers), net "other official flows," and net Euro-credits to the oil-importing countries, and adding U. S. Treasury estimates of U. S. long-term banking flows. OECD, **World Outlook**, December 1975, Table 30, p. 65. Estimates of net Euro-currency credits for 1975 have also been revised to reflect more recent data.

7. There is no easy way of extrapolating the amount of publicly guaranteed bank credits. Morgan Guaranty estimates the increase in disbursed government and government guaranteed external debt of over one year's maturity to be about \$30 billion, compared with our figure of \$36 billion. **World Financial Markets**, January 1976.

8. This is in sharp contrast to the experience of the 1930's, when sustained price declines brought about just the opposite effect—a much faster accumulation of debt in real terms than in nominal terms.

9. In the Philippines the trade deterioration was aggravated by sharp declines in sugar prices and copper prices. Over the long run, the country should benefit from the substantial reduction in inflation brought about by recent policies of monetary restraint.

10. Copper prices increased by about 170 percent from the end of 1972 to mid-1974, but lost almost all of that gain over the next eighteen months. In the meantime, Zaire accumulated foreign debt at an extremely rapid rate, more than doubling its outstanding debt in 1974 with net borrowings of \$650 million.

11. Subsequently, Chile formally requested a meeting of its creditors to consider rescheduling \$700 million of debt-service payments due in 1975. In May, seven of the creditor nations agreed to reschedule \$230 million of that amount. Since then, Chile has met all debt-service payments owed to commercial banks.

12. If interest rates were fixed over the term of the loan, one would expect a positive coefficient if the yield curve were upward sloping, and a negative coefficient if the yield curve were negatively sloped. With variable interest rates, however, the term effect should be less pronounced.

13. The figure assumes a LIBOR rate between 8-10 percent, and excludes commitment fees and management fees for syndicated loans, which are usually on the order of $\frac{1}{4}$ to $\frac{1}{2}$ of one percent.

14. For example, governments of countries such as Brazil, Mexico, and Spain, which typically finance a large number of projects concurrently, have generally paid about the same spread irrespective of the project. This does not mean that individual projects are unimportant, but rather that the government's ability to repay the loan does not hinge on the success or failure of any single project.

15. This indicator is used because debt service represents a fixed obligation which must be paid out of foreign-exchange earnings; hence, a higher ratio is thought to imply increased vulnerability to any foreign-exchange crisis. However, the indicator has been criticized because a number of countries have been able to sustain high ratios for long periods without incurring debt problems. The intent here is not to resolve this long-standing dispute, but simply to examine empirical evidence about whether commercial banks actually rely on the ratio.

16. The 1958-65 comparison was based on a sample of 14 LDC issues and included both public and privately placed issues. Hang-Sheng Cheng, **International Bond Issues of the Less Developed Countries: Diagnosis and Prescription** (Iowa State University Press, 1969), pp. 46-47.

17. Henry J. Bittermann, **The Refunding of International Debt** (Duke University Press, 1973), p. 4-5.

18. The list of countries includes: Argentina, Brazil, Chile, Turkey, India, Indonesia, Ghana, Liberia, Peru, United Arab Republic, Uruguay, Philippines, Yugoslavia, Tunisia, and Pakistan. These cases are reviewed in detail in Bittermann, *op. cit.*